CLAIMS

1. A fuel pump comprising a casing and a substantially disc-shaped impeller rotating within the casing, wherein

a group of concavities is formed in an upper face of the impeller, another group of concavities is formed in an lower face of the impeller, each group of concavities is formed in an area located inwardly from an impeller outer circumference face by a specified distance, concavities forming each group are repeated in a circumference direction of the impeller, a pair of adjacent concavities is separated by a partition wall extending in a radial direction of the impeller, and a pair of concavities in the upper and lower faces of the impeller is communicated,

a pair of grooves is formed in a pair of inner faces of the casing, each groove extending continuously in a direction of rotation of the impeller from an upper flow end to a lower flow end in an area facing one of the groups of concavities,

an intake hole and a discharge hole are formed in the casing, the intake hole passing from the exterior of the casing to the upper flow end of one of the grooves, and the discharge hole passing from the lower flow end of the other of the grooves to the exterior of the casing,

an inner circumference face of the casing extends along the entire impeller outer circumference face including the vicinity of the discharge hole, the inner circumference face of the casing facing the impeller outer circumference face and being separated therefrom by a minute space,

the groove directly communicating with the discharge hole is displaced towards an outer side of the impeller as it approaches the lower flow end thereof, and

the discharge hole is not formed within an area located at an inner side of a region facing the group of concavities of the impeller.

2. A fuel pump as set forth in Claim 1, wherein

a part of the discharge hole at the lowest flow end extends at an area located outwardly from the group of concavities of the impeller.

3. A fuel pump as set forth in Claim 1, wherein

the groove directly communicating with the discharge hole gradually grows deeper as it approaches the lower flow end thereof.

4. A fuel pump as set forth in Claim 1, wherein

the groove directly communicating with the intake hole remains within an area surrounded by the impeller outer circumference face and does not reach the impeller outer circumference face.

5. A fuel pump as set forth in Claim 2, wherein

the groove directly communicating with the intake hole remains within an area surrounded by the impeller outer circumference face and does not reach the impeller outer circumference face.

6. A fuel pump as set forth in Claim 3, wherein

the groove directly communicating with the intake hole remains within an area surrounded by the impeller outer circumference face and does not reach the impeller outer circumference face.

7. A fuel pump as set forth in Claim 6, wherein

the groove directly communicating with the intake hole remains within an area facing the group of concavities of the impeller.

8. A fuel pump as set forth in Claim 7, wherein

the groove directly communicating with the intake hole gradually grows shallower as it approaches the lower flow end thereof.

9. A fuel pump as set forth in Claim 8, wherein

the groove directly communicating with the intake hole c ommunicates with the discharge hole by through-holes communicating the groups of concavities in the upper and lower faces of the impeller, and the groove directly communicating with the intake hole does not communicate with the discharge hole through the outer side of the impeller outer circumference face.